

REMARKS

This response is accompanied by Request for A Three-Month Extension of Time and the necessary fee to extend the date for response until Monday, February 3, 2003.

¶1-2. The drawings have been objected to under 37 CFR 1.83(b) as being incomplete. In response to this objection, the capillary structure has been designated as "5a" in Figures 1 and 5 and "16" in Figures 2-3 and 5. Figures 2-3 and 5 now include similar cross-hatching within loop 10 of generator 2 to indicate that similar capillary structure is used in these additional embodiments of the process of the present invention. It is well within the capabilities of one skilled in the art to select the proper capillary structure depending on the working liquid medium that is being absorbed. In addition, the wall of the heat pipe has been given the number 20 in Figures 1-5. New Figures 4-5 have been added to provide respective isometric views of the embodiments of the process of the present invention using the devices shown in Figures 1-2. Figures 4-5 contains only those elements respectively shown in Figures 1-2 and do not contain any new matter.

¶3. The application has been objected under 37 CFR 1. 71(b) for failure to include an abstract. The Abstract was originally filed as page 2 of the specification. It has now been placed after the claims on a separate page. In addition, the specification has been objected to as not following the standard headings as provided in 37 CFR 1. 77(b). The specification has now been amended to include the standard headings as requested by the Examiner to overcome this objection.

¶4. The disclosure of the process of the present invention has been objected under 37 CFR 1. 71 as being incomprehensible. This objection is the result of the fact that the disclosure is simply someone's attempt to prepare a literal translation into English of the German language of the parent application as the Examiner noted in connection with the rejection of original claims 1-6. The specification has now been amended to refine the English translation with care to avoid any introduction of new matter into the text. In this original translation, "Wärmerohr" was incorrectly translated as "heat tube." The correct translation is "heat pipe." As a result of this incorrect translation, the entire disclosure became incomprehensible since heat tube has no recognized meaning in the art to which the process of the present invention is directed. On the

other hand, heat pipe is universally recognized by all those skilled in the art.

This Amendment is accompanied by a page containing an English translation of a description of "Wärmerohr" from a German technical encyclopedia. The description includes a drawing that shows the mechanics of a heat pipe. It is clear from this translation, that the term "vaporize" is broad enough to include the term "evaporate." In other words, a heat pipe is functional so long as the liquid used in the heat pipe readily evaporates at the external temperatures supplied to the heat pipe by the thermal energy source. There is no need to use the boiling point of such liquids. This reference also makes it clear that the two phase transfer of evaporation and condensation of the heat pipe leads to the "formation of a high speed gas flow from the vaporizer into the condenser." This is the high speed gas flow that is the energy source that drives the gasdynamic electrostatic generator used in the process of the present invention.

Another reference to obtain an instant understanding of heat pipes is the article entitled "What is a Heat Pipe?" located on the Web at <http://www.cheresources.com/htpipes.shtml>. A copy of this article accompanies this Amendment.

The Primary Examiner objected to the previous translation as not defining the following items:

- (1) The source of the energy of the device operation. The foregoing amendment now makes it clear that the source of the thermal energy for operating the heat pipe can be a heater. However, the most practical source is the solar energy.
- (2) The source of the liquid for the heat pipe. This is understood to mean any of the working fluids common in heat pipes after taking into consideration the source of thermal energy. For example, if solar energy were the source, one skilled in the art may reasonably select one of the following fluids as set forth in the table on page 4 of the article entitled "What is a Heat Pipe?": acetone, methanol, ethanol, and Flutec PP2 (Perfluorocarbon that is predominantly perfluoromethylcyclohexane). All of these liquids readily evaporate at low temperatures in the vaporizer section and rapidly condense at a very small temperature difference in the condenser section of the heat pipe.
- (3) The structure of the tubes. This refers to the structure of the heat pipe, which in general is shown on page 6 of the article entitled "What is a Heat Pipe?" However,

Figures 1-5 show the structure for the heat pipe for use in accordance with the presently claimed process.

- (4) The external forces. External forces, which are moving working media in any gasdynamic electrostatic generator, are gas flow forces. The only external forces referred to in the originally filed application are the heat pipe's gas flow forces.
- (5) The "properties of the heat tubes." In view of the foregoing remarks, it is understood that the properties of the heat pipe are well known to one skilled in the art. This is especially true in view of the specification that has now been amended to refer to heat pipes rather than the incorrectly translated "heat tubes."

Accordingly, the Applicants believe have clarified the originally filed disclosure with the foregoing amendments and remarks to enable the Primary Examiner to make a proper comparison of the presently claimed invention with the prior art.

¶5. A new title of the invention has been added to remove this objection.

¶6-7. Claims 1-6 stand rejected under 35 U.S. C. 112, first paragraph for failure to describe the best mode. This rejection has been overcome by the addition of new claims 7-15 that define the best mode contemplated by the inventors at the time they filed the original German patent application on October 22, 1998. The apparent reason for this rejection is the fact that the translation of the original specification contained an error in using the phrase "heat tube" in place of "heat pipe" as discussed in the above remarks.

¶8. The specification has been objected to under 37 CFR 1.71. This objection has been removed by retranslating the entire specification from its original German to English with the understanding that no new matter can be added.

¶9-12. Claims 1-6 stand rejected under 35 U.S. C. 112, second paragraph. This rejection has been overcome by the addition of new independent claim 7 and dependent claims 8-15 that have been written to conform to current U.S. practice.

¶13. The prior art has been made of record and has not been relied upon. However, the Applicants have reviewed this prior art and believe that the presently claimed invention is inventively and patentably distinguishable from all such prior art. To the Applicants knowledge, they are the first to combine a heat pipe with an electrostatic generator for the purpose of supplying the electrostatic generator with the mechanical energy of heat pipe gas flow and for